

Appl. No. : 09/941,395  
Filed : August 28, 2001

Amendments to the Claims:

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1. (canceled) ✓

2. (new) A microbubble preparation comprising an aqueous medium having dispersed therein a plurality of osmotically stabilized microbubbles, said microbubbles comprising:  
a generally spherical microbubble membrane containing a mixture of gases with at least two gases, wherein at least one gas is selected from the group consisting of perfluoropropane, perfluorobutane, perfluorocyclobutane, perfluoropentane, perfluorocyclopentane, perfluoromethylcyclobutane, perfluorohexane, perfluorocyclohexane, perfluoromethylcyclopentane, perfluorodimethylcyclobutane, perfluoroheptane, perfluorocycloheptane, perfluoromethylcyclohexane, perfluorodimethyl cyclopentane, perfluorotrimethyl cyclobutane and perfluoro triethylamine, wherein the second gas is selected from the group consisting of nitrogen, oxygen, carbon dioxide and mixtures thereof and wherein said ratio is effective to stabilize said microbubble preparation; and,  
wherein said mixture of gases is surrounded by at least one denatured protein shell.

3. (new) The microbubble preparation of claim 2 wherein the first gas is selected from the group consisting of perfluoropropane, perfluorobutane, perfluoropentane, perfluorohexane, perfluoroheptane and wherein said second gas is selected from the group consisting of nitrogen and oxygen.

4. (new) The microbubble preparation of claim 2 wherein the

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second gas is air.

5. (new) The microbubble preparation of claim 3 wherein the first gas is perfluoropropane and the second gas is nitrogen.

6. (new) The microbubble preparation of claim 2 wherein the denatured protein is albumin.

7. (new) The microbubble preparation of claim 2 wherein the microbubble preparation is administered for *in vivo* use in diagnostic imaging applications.

8. (new) A kit comprising a preparation for use in *in vivo* ultrasound imaging, comprising:  
a container,  
an aqueous medium within said container wherein said aqueous medium has dispersed therein a plurality of microbubbles wherein said microbubbles contain a mixture of gases,  
said container having a head space above said medium wherein said head space contains at least one gas;  
said microbubbles having a shell surrounding said gases wherein said shell is comprised of a denatured protein;  
said gas within said microbubble consisting of at least one gas selected from the group consisting of perfluoropropane, perfluorobutane, perfluoropentane, perfluorohexane and perfluoroheptane;  
and wherein the same perfluorocarbon gas found within the microbubble is also found within the head space.

9. (new) The kit of claim 8 wherein the aqueous solution contains sterile water.

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10. (new) The kit of claim 8 wherein the microbubbles contain air.

11. (new) The kit of claim 8 wherein the microbubbles comprise a mixture of a perfluorocarbon gas and air.

12. (new) The kit of claim 11 wherein the perfluorocarbon gas is perfluoropropane.

13. (new) The kit of claim 8 wherein the head space contains perfluoropropane gas.

14. (new) The kit of claim 8 wherein the head space contains air.

15. (new) The kit of claim 11 wherein the microbubble comprises a mixture of perfluoropropane and air.

16. (new) The kit of claim 8 wherein the head space comprises a mixture of air and perfluoropropane.

17. (new) The kit of claim 8 wherein the microbubble is surrounded by a shell of denatured albumin.

18. (new) The kit of claim 17 wherein the albumin is human albumin.

19. (new) The kit of claim 8 wherein the contrast medium is administered to a patient by bolus injection.

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B<sub>1</sub> 20. (new) The kit of claim 8 wherein the contrast medium is administered to a patient by intravenous injection.

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